

RESPONSE

Support

Applicants have amended claims 1 and 16 to specify that the combined amount of components (B)(1) and (B)(2) present in the composition is from 5.5 to 20 weight percent. Support for this amendment is found on page 13, lines 17 to 22 of the specification.

Applicants have also amended claim 1 to specify that the nitrogen-containing compound of the (B)(1) reaction product is a polyamine, an alkanolamine, a thiol-containing amine, or a mixture thereof. Support for this amendment comes from claim 2, which is now cancelled, as well as claim 16, and also from page 7, lines 1 to 7 of the specification.

No other elements of the claims have been changed.

Response

The Examiner rejected claims 1-3, 5-10 and 12-14 under 35 U.S.C. 103(a) as being anticipated by Blythe (US 5,264,005) in view of Teacherson (US 2004/0083729). The Examiner appears to concede that the data in the specification does demonstrate a surprising result but concludes that the data is not commensurate with the scope of the claims. Applicants respectfully disagree.

Applicants submit with this response the declaration of Dr. Brent R. Dohner, which contains additional data showing the surprising results obtained by the present invention. The table below summarizes all of the data provided in the specification and also the data provided in the current declaration.

Summary of Data from the Specification and Declaration

Example No <i>(Claims Require)</i>	%(B)(1) <i>(≥ 1.6 %wt)</i>	%(B)(2)	%(B)(1) + %(B)(2) <i>(5.5 to 20 %wt)</i>	Power Valve Rating
1 <i>(comparative)</i>	0	0 <i>(7.2 % PIBSA Dispersant)</i>	0	2.1
5 <i>(comparative)</i>	1.15	5.9 (Aminophenol) <i>(+ 1.3 % PIBSA Dispersant)</i>	8.35	2.8
3 <i>(comparative)</i>	1.2	6.6 (Aminophenol)	7.8	3.1

7 (comparative)	6	0 (5.6% PIBSA Dispersant)	6	3.4
11 (within claims)	1.6	6.0 (Mannich)	7.6	3.50
4 (within claims)	3	6.6 (Aminophenol)	9.6	3.8
9 (within claims)	1.6	4.0 (Mannich)	5.6	3.75
8 (within claims)	6	4.8 (Aminophenol)	10.8	4.3
6 (within claims)	2	7.4 (Mannich)	9.4	4.6
10 (within claims)	1.6	5.0 (Mannich)	6.6	4.39
12 (within claims)	1.6	9.1 (Mannich)	10.7	5.46

Applicants note that the present claims require (B)(1) to be present in the composition at 1.6 wt% or higher. The data above includes seven inventive examples containing component (B)(1) at 1.6 wt%, 2 wt%, 3 wt%, and 6 wt%. The inventive examples each provide higher power valve ratings than the four comparative examples, including examples 1, 5 and 3 which contain 0 wt%, 1.15 wt% and 1.2wt% of (B)(1) respectively.

The present claims also require the total amount of components (B)(1) and (B)(2) present in the composition to be from 5.5 to 20 wt%. The data above includes seven inventive examples containing a total amount of components (B)(1) and (B)(2) of 5.6 wt%, 6.6 wt%, 7.6 wt%, 9.4 wt%, 9.6wt%, 10.7 wt%, and 10.8wt%. The inventive examples each provide higher power valve ratings than any of the four comparative examples.

Applicants respectfully submit that seven examples ranging from 5.6 to 10.8 wt% is sufficient data on which to base a claim limitation of 5 to 20 wt% as there is no indication or reason to expect that higher treat rates of components (B)(1) and/or (B)(2) will lead to a decrease in performance. Indeed, the real concern is whether compositions containing the minimum amounts of additive required by the claims still provide the surprising results. With that in mind, Applicants point out that the data provided

above shows that Example 9, with the 1.6 wt% minimum amount of component (B)(1) and the 4.0 wt% nearly minimum amount of (B)(2), giving a (B)(1)+(B)(2) total of 5.6, just above the minimum of 5.5, does give an improved power valve rating, better than any of the comparative examples. Therefore, Applicants respectfully submit that they have sufficiently demonstrated the surprising results of the data above are present throughout the claimed ranges.

The Examiner expressed concern that the present claims allow for compositions containing only trace amounts of component (B)(2) so long as the amount of component (B)(1) is sufficient to meet the required combined total of components (B)(1) and (B)(2). Applicants note that the claims clearly require component (B)(2) to be present and the data demonstrates that component (B)(2) is required in order to achieve the improved performance. It is Applicants position that a meaningful amount of component (B)(2) is required by the present claims and that a mere trace of component (B)(2) would not bring a composition under the current claims, much as a mere trace of a different component to a composition claimed with closed language would not take the composition out from under such claims, assuming of course the trace of added material does not materially impact the character or properties of the composition to which it is added.

The Examiner also expressed concern regarding the number of compounds that could fall under the description of component (B)(1). Applicants have amended the claims to address this concern. While all inventive examples use the same isostearic acid-tetraethylenepentamine reaction product for component (B)(1), the present claims require component (B)(1) to be the reaction product of a fatty hydrocarbyl-substituted monocarboxylic acylating agent and a polyamine, an alkanolamine, a thiol-containing amine, and a mixture thereof. Further, claim 1 requires that (B)(1) comprises a heterocyclic reaction product. This is a relatively specific group of additives. Isostearic acid is a fair representative of a fatty hydrocarbyl-substituted monocarboxylic acylating agent and tetraethylenepentamine is a fair representative of a reactive nitrogen-containing compound selected from the group consisting of a polyamine, an alkanolamine, a thiol-containing amine, or a mixture thereof. Given the data provided above and the other limitations of the claims, Applicants submit that the description of

component (B)(1) does not render the claims incommensurate in scope with the data provided.

Even if the Examiner finds Applicants remarks with regard to component (B)(1) less than persuasive, Applicants note that there are several dependent claims which further limit component (B)(1). Should the Examiner find component (B)(1) still too broad, Applicants would still respectfully disagree, but would expect claim 3 or at least claim 7, if not others, would fully address the Examiner's concerns.

Applicants respectfully submit that the data, presented in the specification and the included declaration, demonstrates a surprising result over the teachings of the cited references. Furthermore, Applicants submit that the present claims are commensurate in scope with the data provided. Therefore, the present invention is both novel and non-obvious over the references and Applicants request that the current rejections be removed the claims be allowed.

Conclusion.

For the foregoing reasons it is submitted that the present claims are novel and unobvious over the cited reference, and in condition for allowance. The foregoing remarks are believed to be a full and complete response to the outstanding office action. Therefore an early and favorable reconsideration is respectfully requested. If the Examiner believes that only minor issues remain to be resolved, a telephone call to the Undersigned is suggested.

Any required fees or any deficiency or overpayment in fees should be charged or credited to deposit account 12-2275 (The Lubrizol Corporation).

Respectfully submitted,

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